

Mineral Industry Surveys

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MANUFACTURED ABRASIVES IN THE SECOND QUARTER 2010

The U.S. Geological Survey (USGS) collects quarterly data on manufactured abrasives through its survey of producers. Manufactured abrasives included in this report are fused aluminum oxide, silicon carbide, and metallic abrasives. Where indicated, Canadian and United States data are combined to protect proprietary information. Except where noted, the quantities cited in this report are in metric units. All unit value calculations in this report are based on unrounded data.

Fused Aluminum Oxide

The United States and Canadian combined production during the second quarter of 2010 was estimated to be 5,000 metric tons (t) of regular-grade crude fused aluminum oxide with an estimated value of \$800,000, which was essentially unchanged in quantity and value from that of both the second quarter of 2009 and first quarter of 2010. One company, operating one plant in Canada and one in the United States, produced fused aluminum oxide. These production figures have been rounded to the nearest 5,000 t to avoid disclosing proprietary data.

According to the U.S. Census Bureau, U.S. imports of crude fused aluminum oxide during the second quarter of 2010 were 46,600 t valued at \$25.3 million, or an average of \$542 per ton. About 85% of the imports came from Canada, 10% from France, 4% from Venezuela, and 1% from other countries.

U.S. imports of ground and refined fused aluminum oxide for the second quarter of 2010 were 9,780 t valued at \$13.7 million, or an average of \$1,402 per ton.

U.S. exports of crude fused aluminum oxide for the second quarter of 2010 were 5,050 t. These exports were valued at \$19.1 million, or \$3,780 per ton. Canada received 29% of the exports that were shipped; Germany, 22%; United Kingdom, 15%; Mexico, 13%; Japan, 7%; Korea, 5%; India, 2%; and others, 7%. U.S. exports of ground fused aluminum oxide for the second quarter of 2010 were 381,000 t valued at \$167 million, or \$437 per ton. Canada received 58% of the exports that were shipped; Iceland, 21%; Georgia, 8%; Netherlands, 7%; Mexico, 2%; and others, 4%.

Silicon Carbide

Abrasive-grade silicon carbide is produced by one company in the United States. The total production of abrasive-grade silicon carbide during the second quarter of 2010 was estimated to be 10,000 t, with an estimated value of \$7.4 million, which was essentially unchanged in quantity and value from that of both the second quarter of 2009 and first quarter of 2010. These production figures have been rounded to the nearest 5,000 t to avoid disclosing proprietary data.

Total U.S. imports of crude silicon carbide during the second quarter of 2010 were 31,400 t valued at \$20.1 million; imports from China alone were 14,700 t valued at \$11.8 million. The average price of imported crude silicon carbide, excluding Chinese crude, was \$494 per ton; the average price of Chinese crude was \$805 per ton. U.S. imports of ground and refined silicon carbide for the same period were 14,000 t valued at \$23.3 million, or an average of \$1,670 per ton. During the second quarter of 2010, China accounted for 47% of the crude material and 54% of the ground and refined material imported.

U.S. exports of crude silicon carbide during the second quarter of 2010 were reported to be 4,400 t with a value of \$6.86 million. Second quarter exports of ground and refined silicon carbide were 1,250 t valued at \$7.04 million. About 99% of the crude material was shipped to, in decreasing order of quantity, Norway, Mexico, Germany, Thailand, Japan, Brazil, and the United Kingdom. About 95% of the refined material was shipped to, in decreasing order of quantity, Canada, Mexico, Japan, Germany, China, Korea, and Costa Rica.

Metallic Abrasives

Metallic abrasives information was collected from 10 companies operating 11 U.S. plants. During the second quarter of 2010, five companies produced 41,500 t of steel shot and grit, a 32% increase compared with that of the same period in 2009. At least one of the companies produced shot and grit from reclaimed material. Total second quarter 2010 production was valued at \$20.4 million, or an average of \$490 per ton. Total production in 2009 was 137,000 t valued at \$64.9 million. Total production in 2008 was 210,000 t valued at \$98.1 million.

Shipments of steel shot and grit in the second quarter of 2010 were 45,800 t valued at \$27.0 million, or an average of \$590 per ton, compared with shipments during the second quarter of 2009, which were 34,700 t valued at \$19.1 million for an average of \$549 per ton.

During the second quarter of 2010, five companies produced 558 t of other types of metallic shot and grit (primarily cut wire shot) valued at \$2.14 million.

Imports of all types of metallic shot and grit during the second quarter of 2010 were 4,360 t valued at \$3.71 million for an average of \$851 per ton, compared with imports during the second quarter of 2009, which were 3,230 t valued at \$3.06

million for an average of \$949 per ton. Canada, Germany, Korea, Japan, Thailand, and China were the leading suppliers, accounting for 55%, 13%, 10%, 5%, 5%, and 4% of the tonnage imported, respectively.

Exports of all types of metallic abrasives during the second quarter of 2010 were 7,360 t valued at \$9.93 million, or an average of \$1,350 per ton, compared with exports during the second quarter of 2009, which were 5,630 t valued at \$6.07 million for an average of \$1,080 per ton. Shipments to Mexico accounted for 40% of the exports; an additional 28% was shipped to China and 23% was shipped to Canada.

TABLE 1
MANUFACTURED ABRASIVES¹

(Metric tons and thousand dollars)

Source and product	2009								2010			
	Second quarter		Third quarter		Fourth quarter		Total		First quarter		Second quarter	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
<u>United States and Canada, production:^{e, 2}</u>												
Silicon carbide ³	10,000	\$7,400	10,000	\$7,400	10,000	\$7,400	35,000	\$25,900	10,000	\$7,400	10,000	\$7,400
Crude aluminum oxide, regular-grade	5,000	800	5,000	800	5,000	800	10,000	1,700	5,000	800	5,000	800
<u>United States, production:</u>												
Steel shot and grit	31,400	14,700	33,900	16,400	31,300	15,400	137,000	64,900	39,600	19,200	41,500	20,400
Other shot and grit ^{e, 4}	305	1,040	370	1,320	410	1,580	1,470	5,390	480	1,840	558	2,140
Total	31,700	15,700	34,300	17,700	31,700	17,000	138,000	70,300	40,100	21,000	42,100	22,500
<u>United States, shipments:</u>												
Steel shot and grit	34,700	19,100	41,300	24,600	37,500	23,000	151,000	83,700	43,400	25,600	45,800	27,000
Other shot and grit ^{e, 4}	307	1,050	380	1,540	408	1,690	1,490	5,800	458	2,000	486	2,160
Total	35,000	20,100	41,700	26,200	38,000	24,700	152,000	89,500	43,800	27,600	46,200	29,200

^eEstimated.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Quantities are rounded to the nearest 5,000 tons to avoid disclosing proprietary data; values are estimated.

³Includes materials for metallurgical uses and other applications.

⁴Includes cut wire shot and reclaimed shot and grit from primary producers.

TABLE 2
U.S. EXPORTS AND IMPORTS FOR CONSUMPTION OF ALUMINUM OXIDE, SILICON CARBIDE, AND METALLIC ABRASIVES¹

(Metric tons and thousand dollars)

	2009								2010			
	Second quarter		Third quarter		Fourth quarter		Total		First quarter		Second quarter	
	Quantity	Value ²	Quantity	Value ²	Quantity	Value ²	Quantity	Value ²	Quantity	Value ²	Quantity	Value ²
Exports:												
Aluminum oxide:												
Crude	2,220	\$5,680	3,250	\$8,070	3,450	\$9,700	12,300	\$32,000	4,500	\$13,800	5,050	\$19,100
Ground and refined	229,000	90,500	257,000	124,000	224,000	115,000	894,000	416,000	429,000	182,000	381,000	167,000
Silicon carbide:												
Crude	3,100	5,960	4,900	6,890	5,420	7,380	16,900	26,200	5,400	7,350	4,400	6,860
Ground and refined	855	1,850	937	2,090	1,030	4,060	3,750	11,500	1,130	5,120	1,250	7,040
Metallic abrasives	5,630	6,070	6,900	8,360	8,920	11,900	25,900	32,200	6,130	7,030	7,360	9,930
Imports for consumption:												
Aluminum oxide:												
Crude	2,040	1,540	8,600	5,480	20,200	11,200	38,200	23,200	20,300	11,300	46,600	25,300
Ground and refined	4,170	4,940	5,420	6,340	8,600	10,200	26,000	30,500	7,950	11,300	9,780	13,700
Silicon carbide:												
Crude	10,600	7,270	12,000	6,790	25,900	11,500	59,900	33,400	14,900	8,100	31,400	20,100
Ground and refined	3,220	7,410	3,470	8,830	6,910	13,000	18,100	41,100	8,940	18,900	14,000	23,300
Metallic abrasives	3,230	3,060	3,830	2,980	5,980	4,050	15,800	12,100	11,700	5,250	4,360	3,710

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Customs value.

Source: U.S. Census Bureau.